Claims

1. Method **characterized in,** the use of a program controlled display as a light source, for test and experiments.

2. Method according to claim 1 **characterized in,** the light source is composed by one or more activated pixels in a computer, TV or any other active screen.

3. Method according to claim 1 **characterized in,** the illuminating area is displaced without requiring mobile parts.

4. Method according to claim 1 **characterized in,** the light intensity of each individual pixel is individually modulated by software.

5. Method according to claim 1 **characterized in,** the screen color of each pixel is individually scanned within the visible range by software.

6. Method according to any of the claims 1-5 **characterized in,** the color, size, shape, modulation and background color of the light source is configured through the user interface.

7. Method according to any of the claims 1-6 **characterized in,** a program controlled light source illuminates a detector or a detector through a test sample, which tracks the interaction with a target analyte in the test environment, affecting the detected signal.

8. Method according to claim 7 **characterized in,** the test sample itself is chemically or bio-

chemically modified to change its spectral response, upon interaction with the target analyte.

9. Method according to claims 7 or 8 **characterized in**, a custom designed optics is inserted in the light path to enhance spatial resolution and detection limits.

10. Method according to any of the claims 7-9 **characterized in**, the light detector is a unique element or an array of multiple detectors as in a web camera.

11. Method according to any of the claims 7-10 **characterized in**, the same computer controls the complete device: light source, instrumentation and configuration interface providing as result a spectrum or a chemical image or any other property of the sample substance which is displayed on the same screen.

12. Method according to any of the claims 7-11 **characterized in**, the computer also provides the evaluation of the observed properties locally or by an internet connection.

13. Method according to any of the claims 7-12 **characterized in**, the acquisition performed in situ is evaluated by an expert on line e.g., via internet.

14. Method according to any of the claims 7-13, **characterized in** that the detected results are displayed on a part of the screen that is not used for illuminating the detection device.

15. Method according to any of the preceding claims **characterized in,** that all of the operating modalities can be performed simultaneously.

16. Method according to claim 3 **characterized in,** that a diffractive element is placed in front of the moving light source thus providing an outgoing spectrum of colors.

17. Method according to claim 16 **characterized in,** that diffracted light is scanned through a collimating slit by controlled displacements of the light source.

18. Method according to claim 16 **characterized in,** that the diffractive element can be a transmission grating, a reflection grating or a prism, depending on the chosen geometry.

19. Method according to claim 17 **characterized in,** that the collimating slit can be replaced by an array detector.

20. Device **characterized in,** that it is specifically designed to utilize the light supplied by a program controlled display, working in any of the methods above.

21. Device according to claim 20 **characterized in,** that it is an optical component (lens, grating, filter, etc.).

22. Device according to claim 20 **characterized in,** that it is a detector of light.

23. Device according to claim 20 **characterized in,** that it is interacting with the test environment.

24. Device according to claim 20 **characterized in,** that it contains molecules or materials specifically designed to show spectral changes upon chemical or bio-chemical reactions.

25. Device according to claim 24 **characterized in,** that it contains molecules or materials specifically designed to be used together with rgb-color illumination.

26. Device according to claim 20 **characterized in,** that it utilizes the display as a large area light source, to illuminate a large area sample and thereafter a focussing lens in front of a detector.

27. Device according to claim 20 **characterized in,** that it utilizes the screen as a large area light source, which is focussed onto a small area sample, with or without a magnifying lens in front of the detector.

28. Device for the execution of the method of claim 7 **characterized in,** that it utilizes a display as a light source, and a holder for holding a test sample at a given distance from the display.

29. Device according to claim 28 **characterized in,** that a lens, or a grating is inserted between the sample holder and the display.

30. Device according to claim 28 **characterized in,** that a light detector is arranged viewing the test sample.

31. Device according to claim 28 **characterized in,** that it is a focussing lens between the screen and the sample holder.

32. Device according to claim 28 **characterized in,** that it is a magnifying lens between the

sample holder and the detector.

33. Device **characterized in**, that it combines the claims 31 and 32.

34. Device according to claim 28 **characterized in**, that the test sample is interacting with the test environment.

35. Device according to claim 28 **characterized in**, that the test sample contains molecules or materials specifically designed to show spectral changes upon chemical or bio-chemical reactions.

36. Device according to claim 28 **characterized in**, that it contains molecules or materials specifically designed to be used together with rgb-color illumination.